C L A I M S

1. A method for operating an embedded system covering a plurality of technical applications, the operative functions of which are performed with a respective plurality of application-specific Electronic Control Units (ECU) (10, 12, 14, 16, 18), each ECU having separate need of resources regarding at least processing and storage subsystem, characterized by the steps of:
   a) operating a preselected one of said ECUs as a "donor" ECU (18) being provided with predefined storage subsystem resources, and
   b) in case of a breakdown of a storage subsystem and/ or processing subsystem of an "non-donor" ECU (12) donating respective predefined resources to said breakdown ECU (12).

2. The method according to claim 1 further comprising the steps of:
   a) operating a preselected one of said ECUs as a "donor" ECU (18) with a storage subsystem (32) being increased for some predetermined degree,
   b) reserving for at least one non-donor ECU (12) of said ECUs a respective predetermined storage area (50) in the storage subsystem (32) primarily associated with said preselected donor ECU (18) of said plurality of ECUs,
   c) providing to each non-donor ECU (12) an access to a respective one of said reserved storage areas (50),
   d) monitoring the operation of said ECUs,

   in case of breakdown of a non-donor ECU (12) storage subsystem (24) breakdown:

e) transforming addresses associated with said reserved storage area (50) to new addresses adapted for being accessible by said breakdown ECU (12),

f) assigning access to said non-donor ECU (12) to a respective one of said reserved storage areas (50) by using said transformed new address.

3. The method according to claim 1, in which a split-cycle mode operation is performed in which in one memory operation cycle of the donor-ECU (18) the donor ECU and one non-donor ECU (12) access the same storage subsystem (32).

4. The method according to claim 1, further in case of breakdown of a non-donor ECU processor (20) breakdown comprising the step of:
operating said donor ECU (18) in a shared-processor mode, in which a predetermined controllable extent of donor-ECU processor (28) resources is used to run applications, which have run at the breakdown ECU (12) before its breakdown.

5. The method according to claim 1, in which the donor ECU (18) is a human interface Multimedia unit, and a non-donor ECU (12) is a real-time ECU having a considerable lower storage need than the donor ECU.

6. The method according to claim 1, in which a breakdown is defined by errors limitedly resulting in a non-successful operation of a subtotal of applications running in an ECU.

7. The method according to claim 1, comprising the step of reserving said storage area (50) by hardware means, by

processor-specific memory management means, operation system specific means, or middleware-specific means.

8. The method according to the preceding claim 3, in which write and read accesses are performed permanently to both, the respective own donor-ECU storage subsystem (32) and to a respective reserved area (50) in the donor-ECU subsystem, and said split-cycle operation mode is performed permanently.

9. The method according to claim 8, further comprising the step of:
a) in a split cycle comparing read data of a non-donor ECU (12) and respective redundant read data from said respective reserved storage area (50) in said donor-ECU (18), and
if read data is not identical, initiating predetermined error management.

10. An embedded system having means for performing the steps of a method according to claim 9, comprising a hardware logic circuit (40) connectable between a donor ECU (18) and a non-donor ECU (12), said hardware logic circuit (40) comprising logic means for implementing the donating functions.

11. The embedded system according to claim 10, in which said hardware logic circuit (40) comprises
a) an autonomic system control means (60) implementing system faults handling means operatively connected to
b) a DSSM signal control circuit (64) connected for implementing the multiplexing of storage accesses and the

address transforming operations, and to

c) a split-cycle timing generator (70) connected for implementing a shared access to said donor ECU storage subsystem (32).

12. The embedded system according to claim 11 in which a multiplexer means is provided within said DSSM signal control circuit (64) for assigning access to said non-donor ECU to a respective one of said reserved storage areas, which is implemented as a FET switch array.

13. The embedded system according to claim 12 in which said autonomic system control means (60) is implemented in a programmable ASIC.